

Steel Can Solve Construction Problems of Schools, Firm Says

The answer to how to get the nation's 800,000 children now on half-day sessions onto a full-day instruction schedule is as easy as A . . . B . . . C . . . to a young business executive of nearby Huntington Park.

He is Bernard Perlin, vice president and general manager of the Calcor Corporation who since 1954 has been knocking on doors of school boards to sell them an idea—build new classrooms of modular steel construction to meet the mushrooming needs of education speedily and economically.

Perlin has waged a pretty successful sales campaign, for

since 1956 his firm for which he has achieved certain innovations in steel building construction in two years of research and development (1954-56), has fabricated and erected more than 400 classroom units in Southern California alone.

CATEGORICALLY, this breaks down to plants for elementary, junior and senior high school students in 11 school districts. Most recent to be completed is the Justice Street Elementary School of Canoga Park. Opening its doors in September, 1959, it becomes the first permanent all-steel school in the sprawl-

ing Los Angeles City Schools District, whose 825 square miles make it geographically the nation's largest major school district.

Built under a \$469,632 contract won in competitive bidding against builders using other types of construction, the Justice Street plant includes 11 classrooms, two kindergarten classrooms, administrative offices, library and textbook rooms, an assembly-cafeteria building and sanitary units.

DESIGNS for the school were prepared by Roy Donley, A.I.A. and Associates, under the direction of the Los Angeles Board of Education.

Though well established and proven techniques of steel building construction were followed, designs for this project are different from any steel school previously constructed.

The plant represents the first time in this area that steel construction has been designed for the more complex campus buildings, such as assembly-cafeteria and fully appointed administrative units.

The adaption of the school board's planning standards to steel construction required many innovations of detailing, some of which resulted in economies over previous construction. Designs were made flexible by use of a modular system, based upon eight-foot intervals. Classroom lengths may be varied by four or eight-foot increments with only minor changes in the framing system.

AS A PIONEER in steel school construction, Calcor Corporation developed many techniques employed in this and other steel school projects. In pointing out some of the advantages of steel construction, Perlin noted that permanent modular all-steel classrooms, because of their durability, will require less maintenance and reflect a good long-term investment.

The structure incorporates a certain type double steel wall panel, consisting of insulated inner and outer layers which combine to form a 3½-inch wall equal in insulating value to a 12-inch masonry wall, Perlin said.

Tests conducted by the University of California and by local testing laboratories on fire resistivity and structural, thermal and acoustical properties proved the construction system sound and functional.

THE EXTERNAL surface is a heavy gauge galvanized sheet with stiffeners as 16-inch centers, with the interior surface a lighter gauge sheet with interlocking joints at 32-inch centers. The two panels

are joined by screws at the stiffeners.

For sound-proofing and thermal insulation, a ½-inch thickness of gypsum board is attached to the interior sheets and a 1-inch-thick layer of fiberglass material, plus another ½-inch of gypsum board, is laminated to the exterior panel.

After assembly, the insulating materials become the core of a sandwich panel. The roof is a standing seam steel deck with interlocking ribs on 16-inch centers and a 12-foot clear span. The ceiling is of

FRAMING MEMBERS, roof decking and wall panel components are fabricated for steel schools under assembly line conditions in Calcor's materials enter directly into Huntington Park plant. Raw one end of the plant where it is stored until it is needed. The material is then cut or sheared to length and fabricated.

Each manufacturing step follows consecutively so that a straight assembly line is established from the storage of material to the final packaging and loading.

Normal production capacity is 20 all-steel classroom buildings a week. Principal products include all-steel classrooms, school buildings, arcades, gasoline service stations, commercial buildings and other special purpose steel structures.

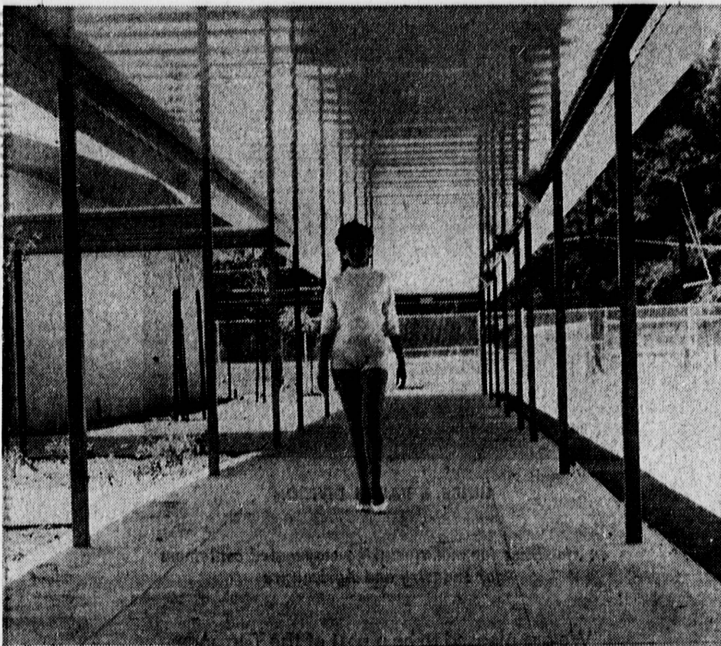
Fabrication is performed to a maximum tolerance of 1/16th of an inch.

COMPONENTS for a complete classroom are loaded on a single truck and hauled to the job site.

The classroom buildings are built on concrete slabs. At the start of the concrete work, steel channel templates are delivered to the concrete contractor to insure correct dimensioning of slab and footing and proper location of all anchor bolts. After the concrete has cured properly, the structural columns, door frames and roof beams are bolted into place. Initially, the



AT GROUNDBREAKING . . . Breaking ground for the new Magnavox Research Laboratories here last September were (from left) J. A. Beasley, councilman; Willys Blount, councilman; Richard A. O'Connor, chairman of the board of directors of Magnavox Co.; George Bradford, councilman; Dr. Ragnar Thorensen, manager, MRL; and Robert Jahn, councilman.



A SCHOOL OF STEEL . . . Safety, utility, beauty and comfort are combined in the design and construction of the first permanent all-steel school in Los Angeles County. Above, steel arcade covering walks between buildings demonstrates clean lines of roof deck and structural systems which were combined for architectural attractiveness. Built by the Calcor Corporation, Huntington Park, Calif., firm which has constructed more than 200 all-steel classrooms in Southern California, the Justice Street Elementary School in Canoga Park is completely incombustible. Above, Darlene Hendricks takes shelter from the San Fernando Valley summer sun beneath the steel arcade which will also keep pupils dry during winter rains.

roof decking and exterior sheets of the wall panels are attached to the frame.

Erection of the steel is halted at this point until the electrical, heating and plumbing work is completed, thus permitting conduit and piping to be located within the wall panels with connections made to utilities on the outside of the building. The interior panels are then attached to complete the structure.

CALCOR COMPARES the insulation qualities of its all-steel buildings to those of a stove or refrigerator. Like these appliances, the school's insulated walls and ceiling keep cold out in winter and heat in; conversely, they keep the heat out and interiors cool in the summer.

The San Bernardino Schools System, for which Calcor built 38 all-steel classroom units on eight different sites in 90 days in the summer of 1956, tested the thermal insulation qualities of the steel classrooms against those of other types of construction. Thermometers were placed in individual

classrooms, and hourly readings were taken. It was established that not only did the classrooms stay cooler during the heat of the day, they also cooled off quicker at night. The same studies revealed steel classrooms heat up much faster under winter heating conditions.

Today, the San Bernardino Schools System is one of all-steel classrooms (and Calcor's biggest boosters. Officials there have indicated that all future school buildings will be made of steel, with the exception of shower rooms.

FIRE-RETARDANT paint which covers galvanized steel of exterior walls, has proven a boon to school maintenance men. Occasional brushing and spraying with a garden hose keeps the outside walls spic-and-span.

Sprayed directly onto the steel under high pressure, the paint can't be chipped with a chisel, and even acid won't stain it. Young scholars testing its ruggedness with inquisitive toes, will find the protective coating rates consider-

ably above shoe leather on the scale of hardness.

A corollary advantage of the insulation is its sound proofing qualities. Rooms are so well insulated acoustically that there is no chance for student clamor to break the sound barrier between classrooms. In fact, rooms are so sound proof that some teachers have complained they can hardly hear the bells between classes. To rectify this situation, most schools have installed p.a. system outlets in all classrooms.

Telephone Officials

To Attend Conference

Area managers of the General Telephone Co. will attend a two-day public relations conference at Santa Barbara Feb. 17 and 18, it was announced yesterday.

Attending from this area will be B. L. Baron, South Bay division manager; R. E. Frahm, Redondo district manager, and J. M. White, Palos Verdes District manager.

**It takes
something
extra to lead
the parade...**

TORRANCE HAS IT*

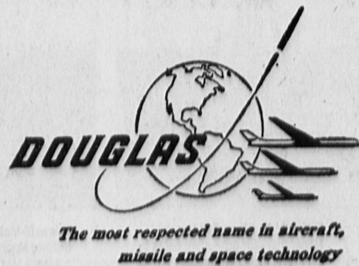
**People who do things better than they've ever been done before*

For example, citizens of Torrance can well be proud of the job they are doing—both in helping build missiles like THOR and NIKE HERCULES and in producing fine plastic parts for all Douglas aircraft, missile and space projects.

These Douglas employees are not only contributing to the strength and economic

well being of our nation . . . but to the prosperity of the Torrance community as well. They spend many thousands of dollars each year in local shops and services.

The success of Douglas products is due in large part to this emphasis on doing a better job—exemplified by the people of Torrance.



The most respected name in aircraft, missile and space technology